GREEN TECH CLUSTER

GREEN TECH VALLEY
RESEARCH MAP
#1 IN GREEN TECH

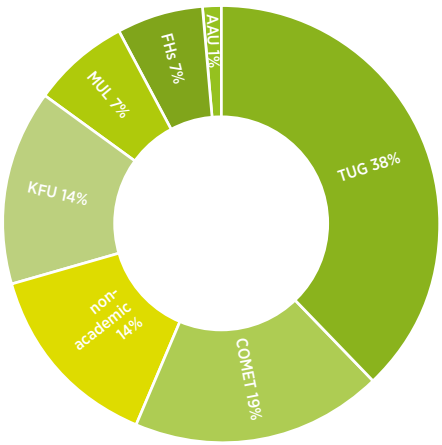
GREEN TECH VALLEY
RESEARCH MAP

The #1 technology hotspot for climate protection and the circular economy in Southern Austria brings together over 2,300 Green Tech researchers at academic and non-academic institutions. With an R&D ratio of some 5% Styria is one of the leading regions in Europe.

Green Tech Key Areas of Focus

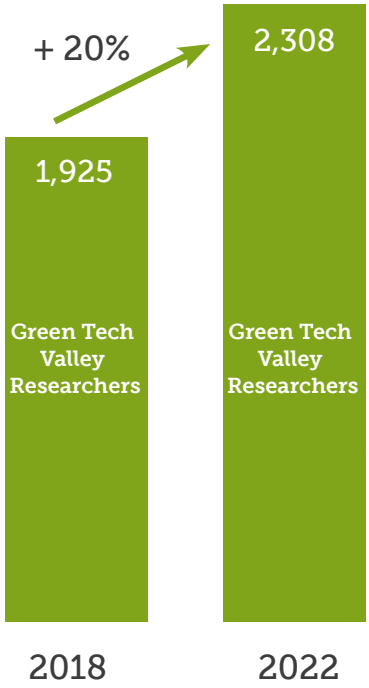
Researchers in the Green Tech Valley are dedicated to the sustainable solutions of the future. The primary focus lies here, at 18%, on the topics of Green Heat & Green Electricity. However, there is also a strong focus on: Efficiency/Industry (16%), Green Mobility (16%), Sustainable Building (14%), Circular Economy (12%) and Green Digital (11%).

Green Tech Researchers by Institution



The majority of researchers in the Green Tech Valley are located at the Graz University of Technology - TU Graz (38%), followed by the COMET competence centres (19%), the Karl Franzens University of Graz (14%), the Montanuniversität Leoben (7%), the Universities of Applied Sciences (7%) as well as the University of Klagenfurt (1%). Further researchers are employed at non-academic-facilities (14%).

Growth



The number of researchers in the Green Tech Valley, in comparison to 2018, has increased significantly. In the year 2022, a 20% increase is anticipated in research staff in the Green Tech Sector. Carinthia and Styria benefit equally. In total, over 2,300 scientists are dedicated to the development of green innovation.

GREEN TECH CLUSTER

Austria comparison

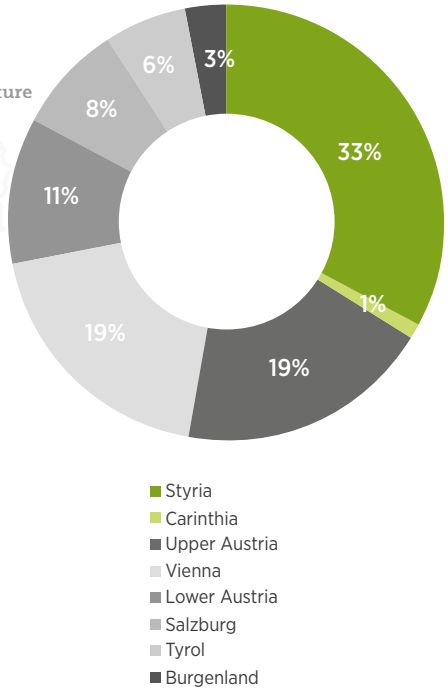
Environmental Engineering Centres under the COMET Program

Source: Ongoing FFG-funded COMET centres/projects/modules

"Dynamic" is the battle cry driving forward development of the Green Tech Valley and research competence in the location. 14 out of 18 Environmental Engineering Centres of the COMET program are in Styria.

Green Tech Valley #1 in Model Region Energy Projects

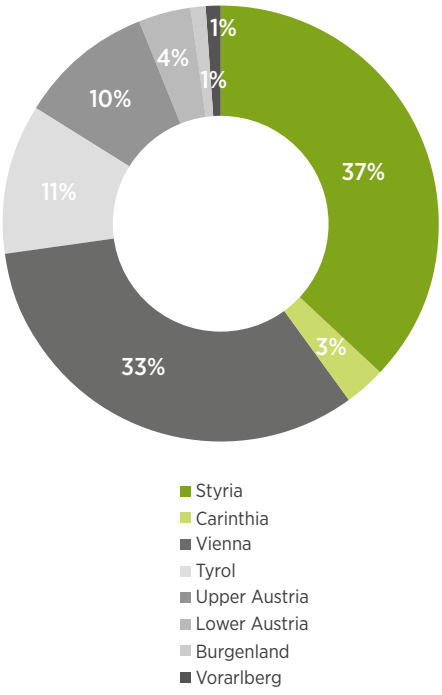
Source: Climate & Energy Fund – Number of partners in projects, n=219



The Green Tech Valley is the leading region for energy research. 1/3 of all the partners in the FTI model region energy initiative, with the goal of developing innovative energy technologies in Austria, comes from the south of Austria.

Green Tech Valley #1 in Renewables Energy Research

Source: FFG-funded projects, www.energieforschung.at, n=244



Here too the Green Tech Valley comes out the top. 40% of Austrian renewable energy research is located in the region.

GREEN TECH CLUSTER

GREEN TECH VALLEY
RESEARCH MAP

#1
Research Hotspot for Climate & Circular Solutions

> 2,300 Green Tech Researchers

> 5% R&D quota (leading in Europe)

Details and direct contacts for institutes and research groups can be found under this link:

www.greentech.at/en/green-tech-research-institutes-austria/

Simply follow the numbering there, to find the facility you are looking for.

GREEN HEAT

Heat Generation
Heat Pumps and Transformers, Refrigeration Units, Solar Thermal Energy
AEE - Renewable Energy, 6
Biochemical Processes
TUG - Inst. of Biochemistry, 54
Model-based Combustion Control, Biomass
TUG - Inst. of Automation and Control, 72
Solar Technology, Storage, Energy Research
TUG - Inst. of Thermal Engineering, 84
Modelling and Simulation
BEST - Bioenergy and Sustainable Technologies, 120
Control and Automation Technology
BEST - Bioenergy and Sustainable Technologies, 121
Data, Analysis and Measurement Technology
BEST - Bioenergy and Sustainable Technologies, 122
Sustainable Supply and Value Chains
BEST - Bioenergy and Sustainable Technologies, 123

Storage / Grids
Heat Storage, Storage Integration
AEE - Thermal Energy Storage, 5
Geothermal Energy, Hydrogen Storage, CO_2 Storage
MUL - Petroleum, Geothermal Energy Recovery, 94

EFFICIENCY / INDUSTRY

Sustainable Industry
Processes, Decarbonisation by Digitalisation
AEE - Industrial Systems, 1
Improvement of Industrial Processes
FH-J - Inst. Industrial Management, 14
Structuring Processes, Nano and Fully Integrated Components
JR-MATERIALS, 23
Energy System Research, Climate Neutral Manufacturing
JR-LIFE, 27
Sustainability Research, Technology Research
KFU - Inst. of Systems Sciences, Innovation and Sustainability Research, 36
Green Processes, Green Chemistry
KFU - Inst. of Chemistry, 48
CO_2 Capture and Storage
TUG - Inst. of Analytical Chemistry and Food Chemistry, 51
Simulation, Industrial Processes
TUG - Inst. of Mechanics, 69
Business Models, Processes, Transport Systems
TUG - Inst. of General Management and Organization, 82
Ind. Manufacturing Processes, Closing Material Cycles
MUL - Industrial Environmental Protection and Process Technology, 87
High Temperature Process Technology, Energy Technology
MUL - Thermal Processing Technology, 90
Logistics, Industry 4.0, Environmental Management
AAU - Inst. of Production, Energy and Environmental Management, 102
Digital Production
FH-K - Additive Manufacturing, intelligent Robotics, Sensors and Engineering, 106
The Circular Economy in Manufacturing
FH-K - Industrial Engineering and Management, 113
Process Improvement, Machine Learning
Fraunhofer Austria, 115
Functional Materials, Material Design
Materials Center Leoben, 138
CO_2-Negative and Efficient Ind. Processes
acib - Centre of Industrial Biotechnology, 143

E-efficiency
Ind. Processes, Drive Technology, Refrigeration Technology
TUG - Inst. Of Electric Drives and Machines, 59
Turbine and Combustion Chamber Concepts
TUG - Inst. of Thermal Turbomachinery and Machine Dynamics, 79
Energy System Optimisation, Hybrid Networks, Flexibility
MUL - Energy Network Technology, 89
Large Engine Studies, Engine Concepts
Large Engines Competence Center, 133
Large Engine Studies, Sensor Technology, System Solutions
Large Engines Competence Center, 134
Simulation, Modelling, System Optimisation
Large Engines Competence Center, 135
Metallurgical Processes
K1-MET - Metallurgical Competence Centre, 148

CIRCULAR SOLUTIONS

Waste resource management
Digital Waste Technology, Future Waste, Battery Recycling
MUL - Waste Processing Technology and Waste Management, 88
Materials Technology, Metals and Battery Recycling
MUL - Nonferrous Metallurgy, 91
Process Procedures, Treatment Techniques
MUL - Mineral Processing, 92
Recycled Plastics
Polymer Competence Center, 132
Plastic & Textile Recycling
acib - Centre of Industrial Biotechnology, 141
Metallurgical Materials
K1-MET - Metallurgical Competence Center, 147

Material substitution
Sustainable Foodstuffs and Process Development
FH-J - Applied Production Sciences, 13
Product Life Cycle, Sustainable Product Management
KFU - CD Lab for Sustainable Product Management, 35
Environmental Chemistry, Biopolymers
TUG - Institute IBioSys, 55
Renewable Raw Materials, Fibre Technology
TUG -Institute of Bioproducts and Paper Technology, 70
Elastomer and Thermoset Technology, Polymer Research
MUL - Materials Science and Testing of Polymers, 93
Eco-Design, Logistics
FH-K - Additive Manufacturing in Agile Virtual Systems for Product and Production Design, 112
Chemistry of Functional Polymers
Polymer Competence Center, 131
Material Substitution, Mobility and Hydrogen Storage
Materials Center Leoben, 136
Biofuels
acib - Centre of Industrial Biotechnology, 140
Materials Research and Process Technology
Wood K Plus, 149

GREEN DIGITAL

Green IT
Power Electronics, Battery and Fuel Cells
FH-J - Inst. Electronic Engineering, 11
IT Applications and Mechanical Engineering
TUG - Dept. of Engineering- and Business Informatics, 67
Environmental IT
TUG - Inst. of Interactive Systems and Data Science, 86
Computing, Resource Management, Analysis, Prediction
AAU - Inst. Information Technology, 95
Digital Twin, Geometry Processing / CAD
Fraunhofer Austria, 114
Power Electronics
Silicon Austria Labs, 118

Robotics / Software
IT Security, Software Development
FH-J - Dept. of Internet Technologies & Applications, 12
XR, UX Design, Digital Training
FH-J - Dept. of Design & Communication, 15
Environmental Monitoring, GIS (Geographic Information Systems)
JR-DIGITAL, 17
IT Security, Cyber Security, Defence
JR-DIGITAL, 20
Modelling, Fluid Mechanics
TUG - Institute of Fluid Mechanics and Heat Transfer, 76
Wireless Networks, Multi-drone / Robot Systems
AAU - RG Mobile Systems, 97
Cyber-Physical Systems, Swarm Intelligence
Lakeside Labs, 116
Machine Learning, Edge Computing
Silicon Austria Labs, 119
Material-Simulation
Materials Center Leoben, 137

AI / IoT / Sensor Technology
Machine Vision, Industrial Inspection, Image Analysis
JR-DIGITAL, 18
Audio and Acoustics, Sensor Technology and Digital Signal Processing
JR-DIGITAL, 19
Information Management, Cloud / Edge Computing
JR-DIGITAL, 21
Chemo and Bio Sensors
JR-MATERIALS, 25
Energy Eff. Signal Processing, Energy Harvesting, Sensor Communication
AAU - Inst. Intelligent Systems, 96
IoT, Smart mobility, grids, factories
AAU - RG Embedded Systems, 98
Drone-based Environmental Monitoring
FH-K - Spatial Informatics for Environmental Applications, 111
Photonics, Sensors
Silicon Austria Labs, 117
Data-driven Business and Artificial Intelligence
Know-Center, 150

GREEN MOBILITY

E-mobility
Sustainable Mobility, Vehicle Concepts
FH-J - Inst. of Automotive Engineering, 9
Fuel Cells, Lightweight Construction, LCA
FH-J - Inst. of Aviation, 10
E-Mobility, Battery Research, Second Life
TUG - Inst. of Vehicle Safety, 62
eGrids, eBattery
FH-K - Electrical Energy & Mobility Systems, 107
Simulation & Modelling
Polymer Competence Center, 130
Virtual Vehicle Development, Connected & Automated Driving
Virtual Vehicle, 144
Safety & Security, System Simulation & Digital Twin
Virtual Vehicle, 145
Digital Twin, Simulation & Digitalisation
Virtual Vehicle, 146

Mobility Research
Mobility Studies, Vehicle Technology
TUG - Inst. of Vehicle Safety, 63
Logistics Optimisation
TUG - Inst. of Logistics Engineering, 78
Mobility Research, Pollutant Emissions Technology
TUG - Inst. of Thermodynamics and Sustainable Propulsion Systems, 83
Algorithms, Improvement Tasks
AAU - Inst. of Mathematics, 100

GREEN ELECTRICITY

Storage / Grids
Battery Materials, Storage, E-Mobility
TUG - Inst. for Chemistry and Technology of Materials, 56
Energy Technology, Grids
TUG - Inst. of Electrical Power Systems, 58
Flywheel Storage, Electronics, Sensor Systems
TUG - Inst. of Electrical Measurement and Sensor Systems, 60
Energy Saving, Energy Studies
TUG - Inst. of Electricity Economics and Energy Innovation, 61
Future Energy Applications and Systems
AAU - RG Smart Grids, 99

Generation
Energy, Transport and Environmental Management
FH-J - Dept. of Energy, Mobility and Environmental Management, 7
(BI)PV, Micro and Nanostructuring
JR-MATERIALS, 24
Sustainable Energy Innovation
TUG - eseia Sustainable Energy Innovation Alliance, 50
Energy Technology, Wind Turbines
TUG - Inst. of Microwave and Photonic Engineering, 65
Hydroelectric Power Technologies, Water Management
TUG - Inst. of Hydraulic Engineering and Water Resources Management, 85
Smart Material Testing
Polymer Competence Center, 128

SUSTAINABLE BUILDING

Urban and Spatial Planning
Heating and Cooling Networks, Spatial Energy Planning
AEE - Cities and Grids, 2
Transportation Modelling, Infrastructure Studies and Modelling
JR-LIFE, 29
Human Geography, Urban Studies
KFU - Dept. of Geography and Regional Science, 43
Social-Ecological Transformation
KFU - Centre for Sustainable Social Transformation, 44
Sustainable Urban Development
TUG - Inst. of Urbanism, 74
Environmental Policy, Environmental Medicine
TUG - Inst. of Highway Engineering and Transport Planning, 75

Hydrogen
Fuel Cells, Environmental Technology
TUG - Inst. of Chemical Engineering and Environmental Technology, 57
Hydrogen Technologies, Battery Research
FH-K - Advanced Battery Management System, 105
Electrolysis, Fuel Cells
HyCentA - Hydrogen Center Austria, 124
Hydrogen Infrastructure, Storage
HyCentA - Hydrogen Center Austria, 125
Fuel Cell Drive Solutions
HyCentA - Hydrogen Center Austria, 126
Electrolysis, Storage Systems and Fuel Cells
HyCentA - Hydrogen Center Austria, 127
Polymers for Structural Applications
Polymer Competence Center, 129
Hydrogen Storage, Green Gas
acib - Centre of Industrial Biotechnology, 139

Building and Refurbishment
Zero and Energy-Plus Buildings, Building Refurbishment
AEE - Buildings, 3
Lighting, Sensor Technology, Building Control
JR-MATERIALS, 22
Solar Houses, Building Ecology
TUG - Inst. of Architectural Theory, Art and Cultural Studies, 52
Sustainable Agriculture, Construction
TUG - Inst. of Buildings and Energy, 64
Sensor Monitored Building Technology
TUG -Inst. of Timber Engineering and Wood Technology, 66
Building Ecology, Concrete Research
TUG - Inst. Of Materials Testing and Building Materials Technology, 68
Sustainable Construction
FH-K - Construction Needs Nature, 110

Sustainable (Timber) Construction
Timber Construction, Circular Economy in Building & Construction Sector
FH-J - Inst. of Architecture and Civil Engineering, 8
Building Ecology, Sustainable Technologies
TUG - Inst. for Building Physics, Services and Construction, 53
LCA of Buildings and Structural Components
TUG - Inst. of Structural Design, 80
Smart Building Materials, Green Concrete
FH-K - Carinthian Institute for Smart Materials, 109
Sustainable Timber Construction, Material Substitution
acib - Centre of Industrial Biotechnology, 142

CLIMATE CHANGE

Climate Research
Communication of Climate Issues
FH-J - Inst. of Journalism and Public Relations, 16
Risk Modelling, Forecasting Systems
JR-LIFE, 26
Climate Change Studies, Global Change
KFU - Wegener Center, 31
Geophysics, Meteorology
KFU - Inst. of Physics, 38
Regional Climate Studies
KFU - RG Regional Climate, 39
Remote Sensing, Climate System Studies
KFU - FG ARSCliSys, 40
System Studies, Climate Change & Adaptation
AAU - Geomorphology and Socio-Environmental Research, 103
Climate Protection and Environmental Law
KFU - ClimLaw Research Centre, 42
Climate Economics and Public Assets
KFU - Inst. of Economics, 47
Technology and Scientific Impact Studies
AAU - Dept. Of Science, Technology and Society Studies, 101
Biodiversity Studies
FH-K - Management of Conservation Areas, 108

Climate Impact Research
Climate Policy Strategies
JR-LIFE, 28
Climate-Resilient Economy, Transformation
KFU - Climate Change Graz, 30
Climate Economics, Climate Adaptation
KFU - Economics of Climate & Environmental Change Research Group, 32
Climate Economics, Social Economics
KFU - Innovation, Diffusion & Transformation Processes Research Group, 33
Transformation Research
KFU - Social Complexity & System Transformation Research Group, 34
Environmental Sociology, Behavioural Research
KFU - Dept. of Sociology, 37
Ethics, Social Philosophy
KFU - Dept. of Philosophy, 41

Land / Air / Water
Closed-Loop Water Recycling, Recycling of Reusable Materials
AEE - Water and Process Technologies, 4
Hydrology and Climate Change
KFU - Institute for Earth Sciences, 45
Physical Geography
KFU - Department of Geography and Regional Science, 46
Functional Diversity & Ecology
KFU - Institute of Biology, 49
Technological Environmental Protection
TUG - Institute of Process and Particle Engineering, 71
Wastewater Treatment, Emission of Pollutants
TUG - Institute of Urban Water Management and Landscape Water Engineering, 73
Sustainable Agriculture, Digitalisation
TUG - Institute of Technical Informatics, 77
Environmental Biotechnology
TUG - Institute of Environmental Biotechnology, 81
Soil Science, Environmental Research
AAU - Human-Environment Research from a Physical-Geographical Perspective, 104

ALL DATA IS ALSO **AVAILABLE ONLINE**

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